

**AMBULATORY CARE IN ALBERTA USING
AMBULATORY CARE CLASSIFICATION SYSTEM DATA**



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EXECUTIVE SUMMARY

Background

The Ambulatory Care Classification System (ACCS) was developed by Alberta Health and Wellness (AHW)¹ and implemented in 1997. A review of the progress and validation of the data collection process, the grouper and the classification systems was conducted a year later and a report published in September 1998 confirmed that the system was working well and that the data were valid.² There are over five million ambulatory service records in the ACCS database where an ambulatory service is defined as any contact with a regional health service provider who treats patients not requiring an inpatient stay.

This project was initiated to demonstrate, through a high-level overview, how data from ACCS could be used to describe and assess ambulatory services provided in Alberta. There is evidence that the database, which has grown steadily over the last five years as more and more regions meet reporting requirements, will be at close to 100 per cent compliance in 2002/2003 data year.

Having a classification and reporting system for ambulatory services is warranted by the significant resources represented by these services. For 2003/2004, the total ambulatory care funding pool amounted to in excess of \$868 million (25.1 per cent of the total funding pool available for regional health authorities).

Inpatient services in this fiscal year were 41.7 per cent of the total available funding pool – a significant change from the days when inpatient costs were 70 per cent of total expenditures in the health care sector. ACCS provides evidence that ambulatory care is a major and established service model in the province of Alberta. In Alberta, ambulatory care includes traditional hospital-based programs (such as Emergency and Day Surgery), as well as services delivered in community based settings (such as outpatient clinics), and incorporates primary and secondary prevention as well as diagnosis, patient education, treatment, and rehabilitation services.

Highlights and Achievements

In ACCS, AHW has a service classification system, known as a grouper, that has demonstrated its effectiveness and a database that provides evidence that ambulatory care is a valuable and highly utilized service model in the province.

An Effective Grouper: Alberta has much to be proud of in the effectiveness of ACCS as a grouper:

- Alberta is the only province in the country with a comprehensive ambulatory care database, with a capacity to include both hospital-based and community-based services;

¹ Alberta Health and Wellness was at that time Alberta Health. However, the current designation for the Ministry of Health is used throughout this report for consistency.

² Geyer Szadowski Consulting Inc., *Review of the ACCS Grouper – A Report Prepared for Alberta Health, September 1998.*

- It takes 15,000 ICD-10-CA and over 10,000 CCI codes and groups it into 426 categories making data analysis more meaningful;
- It has an electronic submission capability that is flexible, and allows users to access their own regional data easily.

AHW regularly reviews and updates its grouper capacity and scope. Recently, AHW and the regional health authorities successfully integrated the conversion of ICD-10-CA/CCI into ACCS. Finally, ACCS continues to align, where possible, with inpatient coding and Management Information Systems (MIS) coding requirements.

High Patient Utilization and Access: A review of utilization at the "unique" patient level provides the first insight into the extent to which ambulatory care is used in this province. When an unduplicated count of patients represented in the annual data is reviewed, it appears that a significant proportion of Alberta's population, about 40 per cent in 2001/2002, had contact with the ambulatory care system.

The very young and the very old are high users of ambulatory care services, with over 40 per cent of those under one year of age, and almost 60 per cent of those over 65 making contact with ambulatory programs during 2001/2002. Utilization varied slightly by gender in these groups.

A Wide Range of Ambulatory Services: The data reveals that services reporting to ACCS range over the full spectrum of care, from acute medical diagnosis and treatment in hospital clinics to education, treatment, and rehabilitation programs provided in the community. Dominant programs identified through the ACCS data are:

- Emergency Departments, which form about one-third of the database;
- Non-interventional services (for clinical assessments, diagnosis and treatment, and education) which make up another one-third of the total ACCS annual volumes;
- Rehabilitation services which represent almost a quarter of the total visits reported, and now include community-based services as well;
- Procedures which now comprise over half a million services annually and form about eight per cent of annual reported volumes.

It is imperative to note that, only a few years ago, a large number of users would have been hospitalized to receive a variety of these services.

Major Users of Data

Consistent users of ACCS data are AHW and the Costing Function Team, in partnership with regional health authorities. ACCS data has provided both AHW and the regions with a mechanism for quantifying and allocating funds related to services outside hospital inpatient services. Many regions have used ACCS data to further analyse and plan their position with respect to export/import services in ambulatory care. The potential for using this data for health services research is being explored by many researchers in the province.

Templates for Further Analysis of ACCS

As a starting point, this report provides a series of templates and provincial utilization benchmarks for major service categories easily defined through ACCS. Regions can use these to assess how their performance within each category meets provincial experience. Furthermore, every service reporting into ACCS provides detailed information about patients, clinical basis for care, and the type of provider(s) involved in that treatment, education, service or rehabilitation. This level of detail could provide new opportunities for research into health service utilization not possible prior to ACCS, or in fact possible in any other province in Canada.

Further areas of analyses at the regional level include:

- Potential benchmarking between programs (such as waiting times for services or disposition levels in emergency departments), use of different service providers for the same services, or the utilization and effectiveness of educational programs;
- Outcomes/baseline studies of chronic disease management programs;
- Variations in resource use for similar services within the region;
- Utilization review that assesses discrete patients and numbers of visits by individual patients in various service settings to identify potential over and/or under utilization of key services;
- Outcome evaluation studies of new programs;
- Development of performance targets for similar services;
- Planning, service delivery, duplication, and capacity issues under new Regional boundaries.

Expanding the Scope and Uses of ACCS

Alberta Health and Wellness, as the steward of ACCS, has managed the development and the maintenance of the grouper and the data set. This has included the need to keep the grouper up to date, incorporating reporting and coding changes, converting to IDC-10-CA/CCI, and reviewing the cells for homogeneity and for relevance in the context of rapidly changing service delivery models.

ACCS could also be the basis of integrated "programmatic" study in future – with the potential to provide regions and AHW comprehensive utilization and costing information. This can be achieved through the following:

1. *Extending the scope of ACCS:* Using ACCS for all ambulatory reporting in the province will increase the comprehensiveness of the database and allow for more comparisons between regions and patient utilization levels.
2. *Developing case-mix values:* Expanding the current average cost schedule to relative case weights, and making these weights relate to inpatient case weights as well, could provide significant benefits to both funding and costing programs in the future.

3. *Continuum of care links:* Links with inpatient case-mix and ultimately to home care and physician billing could be invaluable for providing information about the effectiveness of chronic disease management programs, for identifying outcomes and for identifying the need for additional or different resources to manage these needs.

ACCS has played, and could continue to play, an integral role in planning and problem-solving. The data analysed here represent only a fraction of the full potential. The analysis in each section is devoted to a specific service and can be duplicated at the regional level to identify local utilization, intensity of use by various age groups or residents and by provider type, and to track unique patient utilization patterns. Additionally, local detail could be incorporated to address not just service utilization, but also performance measures, outcomes, and benchmarking of best practices at the regional and provincial levels.

1. PURPOSE OF THE REPORT – SCOPE OF WORK

The Ambulatory Care Classification System (ACCS) was developed by Alberta Health and Wellness and implemented in 1997. A review of the progress and validation of the data collection process was conducted one year later and a report published in September 1998 confirmed that the system was working well and that the data were valid.³

Since implementation of ACCS, many changes have occurred, and the volume of data submitted to Alberta Health and Wellness has grown each year. This *ACCS Report* was initiated to explore this opportunity and to examine how accumulated ACCS data could be used to describe ambulatory services currently provided in Alberta.

The report uses data from 1998/1999 to 2001/2002. Data from the implementation year (1997/1998) has not been used in this report because it is unrepresentative of comprehensive regional reporting capacity. The primary focus of this report is at the aggregate, provincial level. Specifically, this report targeted the following objectives:

- Present the context of ACCS in Alberta;
- Describe the status of ambulatory care in Alberta from ACCS grouped data and in terms of the four-year time frame of available data. Define major issues with interpreting data across this four-year span, and in interpreting changes in volumes over these four years;
- Summarize the current uses and users of ACCS data thus highlighting the achievements of ACCS, status of data collection, and other related issues;
- Review major opportunities and challenges in using ACCS data and highlight issues that could enhance the utility of ACCS in future.

This report will summarize the status of the National Ambulatory Care Reporting System (NACRS), and will also note the uses for ACCS data within the Costing Function Team in Alberta. A detailed analysis of NACRS and the costing team itself is outside the scope of this report.

1.1 Methodology

The process for developing this report involved key members of Alberta Health and Wellness as well as meetings with the Provincial Ambulatory Care Advisory Group (PACAG).⁴ Members of PACAG were invited to provide advice and feedback to the consultant on proposed approaches. The consultant contacted the Canadian Institute for Health Information for the update provided in this report on the status of the national grouper. Staff at Alberta Health and Wellness guided the development of the templates, and provided all of the data for this report.

Based on feedback received, the consultant defined the overall approach for the report. A definition was developed to describe utilization levels for major services in terms of volumes and

³ Geyer Szadowski Consulting Inc., *Review of the ACCS Grouper – A Report Prepared for Alberta Health*, September 1998.

⁴ A list of those involved in developing this report, and of PACAG members is included in the Appendix.

population. The decision was made to focus on emergency, non-interventional services and procedures for the primary analysis, since these categories are easily identifiable in the data. Rehabilitation is reviewed as well, but not to the same depth since reporting in this area is still evolving. For comparing utilization of services, the decision was made to use "services per 100 persons" to adjust for the impact of higher populations in different age and gender groups. Finally, unique patient information within the total provincial ACCS data was generated to examine utilization at an unduplicated level.

1.2 Background to ACCS Development

Understanding the origins of the ACCS grouper is an essential first step in appreciating the contribution of ACCS to the information about ambulatory services in Alberta. The impetus for the development of a classification system for ambulatory care originated from the initiative to use case-mix to fund inpatient acute care (Acute Care Funding Plan, 1989-1992). As that project brought hospital costs under scrutiny, the following facts emerged:

- Costs attributed to hospital-based ambulatory care had grown, and the proportion of these costs relative to inpatient care had increased steadily over the years;
- Ambulatory services provided diagnosis and treatment, as well as secondary prevention programs and alternatives to hospitalization – all of which were consistent with Alberta Health and Wellness policy;
- At that time, there were no activity or accountability measures for ambulatory care, nor was there comprehensive coding of clinical activity comparable to inpatient services.

In the 1990s, ambulatory care consisted primarily of the following, all of which were provided within hospital settings:

- Emergency Department (ED) services
- Clinics that were off-shoots of ED services (cast and hand clinics, for example)
- Day procedures (e.g. gastrointestinal procedures) and other day treatment services
- Day surgery (mainly cataract surgery)
- Diagnostic services, specifically imaging (expanded to Computed Axial Tomography and Magnetic Resonance Imaging)
- High-technology treatment such as radiotherapy and nuclear medicine
- Clinic visits for chronic medical conditions (diabetes, asthma)
- Patient education programs for chronic conditions
- Pre-natal services
- Hospital-based outpatient rehabilitation
- Mental health services

- Cancer diagnosis and treatment

When regional health authorities were established, a population-based funding methodology evolved, and the need for accurate data about ambulatory care became more critical. Regions with active ambulatory care programs indicated their support for a provincial approach to reporting, documenting, and thus justifying the funding of ambulatory care services. Even before the prototype ACCS grouper was developed, there was a clear awareness that hospital-based services would not be the only services addressed by this grouper. ACCS was intended to be a comprehensive case-mix grouper capable of incorporating physician and non-physician services and of being implemented in both hospital and community-based settings.

1.3 Current ACCS Management

A history documenting the grouper's evolution over the last five years is outlined in the Appendix to this report. The ACCS grouper has been maintained through the support and continued commitment of AHW and the RHAs. The role of AHW includes the following:

- Maintaining and monitoring ACCS grouper amendments, standards of data collection, changes in data requirements, and data submission guidelines
- Conducting regular educational sessions to address coding requirements and providing guidance to regions
- Maintaining electronic submission capacity
- Maintaining electronic databases that regions can access for their use
- Maintaining the Costing Function Team which includes the development of ACCS average costs
- Maintaining consistency and alignment of ACCS data elements with the requirements of Management Information Systems (MIS) and inpatient coding guidelines
- Anticipating and organizing ACCS's capability to incorporate new procedures and new services
- Directing the incorporation of new national initiatives such as ICD-10-CA/CCI coding
- Using ACCS for population-based funding decisions
- Determining policy for the future of ACCS and its role in the province.

There are two groups that advise AHW on operational issues relative to ACCS. These are the Provincial Ambulatory Care Advisory Group (PACAG), and Health Record Advisory Committee (HRAC).

These groups assist AHW in solving operational and data collection problems and in determining how to proceed with future amendments and changes that affect ACCS.

2. CONVERTING ACCS DATA TO INFORMATION – AN OVERVIEW

ACCS has undergone a series of changes over the last five years. This reflects both its flexibility, and the system's ability to evolve to meet new needs. Regionalisation and the expectations for a classification system that was not limited by site or service model have been the major drivers of change.

In addition to responding to the demands of a new health system, changes were also made in ACCS to ensure that where similar data were collected between inpatient and outpatient settings, they were consistently defined and coded. External pressures that affected all classifications systems include anticipation and planning for Year 2000 changes, and the need to incorporate ICD-10-CA/CCI into reporting for ACCS. This latter change in particular was a major challenge and one that was successfully completed in a joint effort between AHW and the regions.

2.1 Data Collection Milestones

The following reflect milestones in the expanding scope of the ACCS data collection process:

- April 1997: mandatory reporting of ED and day procedure patient activity. These were the first areas of required reporting using Alberta ambulatory care minimum data set.
- October 1997: clinics, mental health and hospital-based rehabilitation services were phased in.
- 1998/1999: new ACCS groups developed for high cost investigative technologies.
- April 1999: community-based rehabilitation was brought into the ACCS reporting fold.
- April 2000: Discrete Diagnostic Imaging visits to be reported using the new mode of service "9".
- 2000/2001: The ACCS Grouper Cell Review Team reviewed and revamped a large number of cells to reflect resource homogeneity. The changes to ACCS were the most extensive since its implementation.
- April 2002: ICD-10-CA/CCI was successfully implemented, with ACCS now able to incorporate the new coding system.

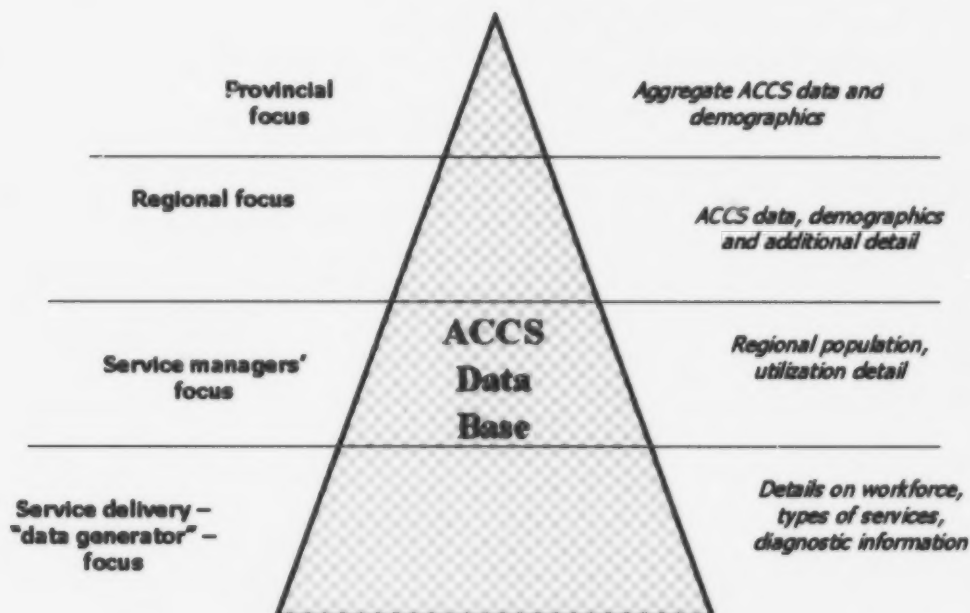
Current Status of Database

Logistical and resource problems affected compliance with reporting requirements for a few regions and service areas. However, the current sense is that all regions have overcome these barriers and that in 2002/2003 data year, the data reported will be very close to full compliance. As a consequence, Alberta will have a comprehensive database of ambulatory service events which, associated with the costing function, will provide rich resources for research and strategic planning for services. These tools are not available in any other province in Canada.

Potential Users and Usages

The ACCS database provides an important source of information about how regions are delivering ambulatory care across Alberta.

The following diagram identifies varying levels of available detail within the ACCS database, and their relevance to different users within the health delivery system. Details in the database include unique patient information, information about utilization of services for different demographic populations, utilization by service level or linked services, building of "programs" using discrete services, and links with diagnostic and treatment information for chronic disease management. This data can also be used for planning for new facilities, or to determine the location of new services, based on patient utilization patterns. Finally, cost information either from within regional databases or at the provincial level can help forecast costs for changes in service models anticipated in the future.



2.2 Status of Reporting under ACCS

2.2.1 Growth in Reported Data

In five short years, from 1997/1998 to 2001/2002, every single region has reported increases in activity, and the overall consensus is that this growth reflects increased compliance with reporting requirements. In 2001/2002, more than 5.9 million individual services were submitted by the 17 regions in this province.

The following table illustrates the second and last year's submission levels, and summarizes the growth over the four years at the regional and provincial levels.

Table 2.1 Summary of Growth in ACCS Reporting

Region	1998/1999			2001/2002			Growth in volume of visits reported
	Number of visits	Per cent distribution	Number of visits per 100 persons*	Number of visits	Per cent distribution	Number of visits per 100 persons*	
1	208,899	5.7%	140.7	338,729	5.7%	223.5	129,830
2	122,729	3.3%	133.6	212,070	3.6%	217.4	89,341
3	654,554	17.8%	64.2	1,538,671	26.1%	140.1	884,117
4	389,318	10.6%	144.1	526,795	8.9%	186.6	137,477
5	150,612	4.1%	140.3	209,552	3.5%	191.8	58,940
6	1,546,118	42.1%	168.7	2,178,960	36.9%	226.5	632,842
7	281,540	7.7%	162.8	413,339	7.0%	235.0	131,799
8	248,091	6.8%	197.3	350,137	5.9%	270.5	102,046
9	67,806	1.8%	112.2	135,241	2.3%	204.3	67,435
Provincial totals	3,669,867	100%	126.0	5,903,404	100%	192.1	2,233,537

*Note: Number of visits in a given region includes visits by residents of that region, as well as visits by residents from outside the region. One would expect net-importing regions to have a higher average "Number of visits per 100 persons".

In addition to increases in total volumes of reported services, the table also illustrates use of services per 100 persons which increased from 126 visits (or services) per 100 persons in 1998/1999 to 192 per 100 in 2001/2002.

The growth in data is primarily due to increased reporting across these four years and increased number of services being provided. Conducting trend analyses on this data is a challenge since it is impossible to separate increased reporting compliance from increases in services within regions. Regions continue to improve reporting comprehensiveness, and the Calgary Health Region in particular is a large region that expects to be at full reporting in this year (2002/2003 data year). If its numbers are even roughly equivalent to that of Capital Health, there could be

another significant increase in number of reported cases to the database before stable state is achieved.

2.3 Population Levels and Utilization of Ambulatory Care

Utilization of ACCS services was reviewed for four age-groups or categories: infants in the under-one-year group, children and youth ranging from age one to 17; the adult age group from 18 to 64 years; and older adults in the over 65 age group. Each of these age groups has been further separated into male and female sub-sets. A quick review of the population for the last four years is illustrated in the table below.

Table 2.3 Alberta Population and Demographics⁵

Population		Year			
Age group	Gender	1998/1999	1999/2000	2000/2001	2001/2002
<1	F	18,859	18,834	18,136	18,328
	M	19,930	19,323	18,912	19,043
<1 Total		38,789	38,157	37,048	37,371
1-17	F	356,711	356,989	357,372	358,807
	M	374,799	375,460	375,774	377,164
1-17 Total		731,510	732,449	733,146	735,971
18-64	F	920,231	938,336	958,938	985,498
	M	930,905	948,866	970,906	998,129
18-64 Total		1,851,136	1,887,202	1,929,844	1,983,627
65+	F	162,320	166,304	170,731	174,846
	M	128,488	132,173	136,143	139,987
65+ Total		290,808	298,477	306,874	314,833
Grand total		2,913,132	2,957,008	3,007,582	3,072,384
Ungrouped		889	723	670	582

Basically, the birth rate in these four years has been relatively stable, and the population in the one to 17 age group has also not changed significantly.

However, the adult population (18 to 64 years) has increased by over 100,000, and there has also been an increase of over 20,000 in the older adult categories.

Because volumes within these age groups vary significantly, utilization of various ACCS services has been expressed at numbers of services per 100 persons within each age category. This identifies changes or differences in the "intensity" of use and allows for the differentiation of the impact of variations in volumes between age and gender categories.

⁵ Source: Alberta Health and Wellness Population Registry File. Population Figures as of March 31st of fiscal year.

2.4 Utilization of Ambulatory Services by Unique Patients

The service "visit" reported in the ACCS database does not represent unique patients, but represents unique service events. The issue then was to determine how many unduplicated individuals used ambulatory services in the province. The analysis of this was conducted on aggregate data to yield a provincial picture.

The following tables define unique patients by gender, within each age category, and the average number of visits reported for unduplicated, unique patients in each age category. The number of unique patients was calculated by extracting all valid Personal Health Numbers (PHNs) from the ACCS database, grouping them, and then counting the number of unique PHNs.

Table 2.4 A: Unique Patients 1998/1999 and 1999/2000

		1998/1999		1999/2000	
Gender & age group		Unique patients	Avg. number of visits per unique patient	Unique patients	Avg. number of visits per unique patient
F	<1	7,119	2.6	7,275	2.7
	1-17	110,005	3.0	115,781	3.4
	18-64	295,395	3.7	318,349	3.9
	65+	74,695	4.9	80,230	5.1
M	<1	8,834	2.7	9,101	2.9
	1-17	127,640	3.3	134,631	3.7
	18-64	250,760	3.4	272,764	3.6
	65+	63,421	5.2	67,965	5.6
All		937,869	3.6	1,006,096	3.9

Table 2.4B: Unique Patients 2000/2001 and 2001/2002

		2000/2001		2001/2002	
Gender & age group		Unique patients	Avg. number of visits per unique patient	Unique patients	Avg. number of visits per unique patient
F	<1	7,270	3.4	7,409	3.6
	1-17	129,189	3.7	129,814	3.9
	18-64	382,371	4.4	396,761	4.5
	65+	96,329	6.1	101,526	6.1
M	<1	9,119	3.4	9,156	3.5
	1-17	149,983	4.1	153,659	4.4
	18-64	322,678	3.9	331,703	4.1
	65+	79,369	6.4	82,978	6.3
All		1,176,308	4.4	1,213,006	4.6

*Note: All patients with invalid PHNs have been excluded from the analysis

Table 2.5 Unique patients and percentage utilization of ambulatory services 1997/1998-2001/2002

		1998/1999	1999/2000	2000/2001	2001/2002
Gender & age group		Unique patients as per cent of population	Unique patients as per cent of population	Unique patients as per cent of population	Unique patients as per cent of population
F	<1	38%	39%	40%	40%
	1-17	31%	32%	36%	36%
	18-64	32%	34%	40%	40%
	65+	46%	48%	56%	58%
M	<1	44%	47%	48%	48%
	1-17	34%	36%	40%	41%
	18-64	27%	29%	32%	33%
	65+	49%	51%	57%	59%
Total		32%	34%	39%	39%

*Ungrouped data from each year were excluded, ranging from 626 (year 4) to 891 (year 1)

Findings

The data indicate that given Alberta's total population in 2001 of just over 3 million, 39 per cent of the population (1.2 million unique individuals) accessed some form of ambulatory care in the province. This reflects a significant contact of patients with the provincial health system.

The average number of reported visits per unique patients has gone up from 3.6 per unique patient to 4.6 per unique patient. About 32 per cent of the patients had an ambulatory service in 1998, with the numbers steadily rising to 39 per cent in 2001. Hence, more services are being reported as provided to individual patients within the system. This increase is probably due to increased reporting but nevertheless underscores the high level of utilization of ambulatory services in this province at this time.

Almost half of the infant male population used ambulatory care, with female infants not far behind at 40 per cent. While further study is required to understand the exact nature of services provided to this population, this result underscores that newborns access significantly more ambulatory care services in the first year after birth than most other age groups in the province.

In 2001, in the over 65 age category, the total population was 314,833. Of this, 184,504 unique individuals or 59 per cent accessed ambulatory services in that year. Reported activities for males over 65 are slightly higher than for females.

At an aggregate level, the youngest and the oldest members of the population appear to be the highest users of ambulatory care services in Alberta.

2.5 Review of Major ACCS Service Categories

2.5.1 *Developing Service Categories within ACCS*

Aggregate ACCS data can be separated into major service areas, using the grouper's logic for sorting data into major categories based on the service provided. Criteria for defining service categories include the following caveats:

- ACCS cells are not directly linked to or limited to use in specific locations of service. Hence, the same procedure (e.g. biopsy) can occur in EDs, in offices, in procedure rooms, and in clinics. The grouper does not identify location since the assumption is that the same service should be valued at the same resource intensity regardless of location. This results in overlaps in some totals reported – for example, volumes of ACCS “procedures” overlap with volumes for EDs since procedural codes can be used in multiple locations.
- Definitions of “visits”, “services”, and “contacts”: A patient might receive several services in the same day, each of which may be recorded as a separate event in the database. Hence, with the exception of “unique patients”, the rest of the data refers to service events and may represent multiple visits or contacts for individual patients with the health system.
- Some clinical services may involve multiple clinicians at the same visit. This is true in Mental Health where an exception to the general ACCS definition of visits was made in 1999 allowing contacts with multiple providers in mental health services to be reported as separate events even if they occur in the same “visit”.
- ACCS cells for rehabilitation define services delivered by a specific range of professionals, and the cells describe levels of service (units of time) for the clinician involved. However, ACCS cells from Emergency Departments represent a variety of services, and cells reflect a mix of clinical/professional services (ranging from emergency and mental health services to procedures and non-interventional services).

The following table identifies six major categories of ambulatory care services that can be easily identified in the ACCS database. The table provides annual volumes and changes in these volumes over four years (1998/1999 to 2001/2002). Emergency Data was defined using MIS codes; all others were defined using ACCS codes.

Within each year, the proportion of the volume represented by each service in the total ACCS is provided, with the caveat (see above) that there are overlaps between some categories and variations in visit definitions as well.

In spite of these limitations, the data illustrate the breadth and scope of ambulatory services provided in Alberta ranging from acute to non-acute in nature, involving medical and non-medical clinicians, and dealing with emergency and chronic needs within the population.

Table 3.1 Types of ACCS Services

ACCS services	1998/1999	1999/2000	2000/2001	2001/2002	Growth since 1998/1999	Per cent increase since 1998/1999
Emergency department ⁶	1,651,891	1,738,926	1,805,438	1,812,336	160,445	10%
As per cent of total ACCS	45%	41%	33%	31%		
Non-interventions exc oncology	1,376,674	1,413,701	1,522,730	1,565,232	188,558	13%
As per cent of total ACCS	38%	34%	27%	27%		
Rehabilitation	520,405	634,551	1,397,575	1,440,405	920,000	177%
As per cent of total ACCS	14%	15%	25%	24%		
Procedures	402,064	441,684	440,716	469,037	66,973	17%
As per cent of total ACCS	11%	10%	8%	8%		
Mental health	150,866	233,195	194,466	194,144	43,278	29%
As per cent of total ACCS	4%	6%	4%	3%		
Dialysis (PWS)	98,655	126,164	140,239	156,859	58,204	59%
As per cent of total ACCS	3%	3%	3%	3%		
Total ambulatory visits	3,669,667	4,214,068	5,537,990	5,903,494	2,233,827	61%

Every category has seen increases of reported services over the years. Because of accelerated increases in reporting of some programs, the annual proportions have varied from year to year. In this context, the four dominant categories of services using 2001/2002 data are:

- ED visits, which are about one-third the total volume of ACCS visits;
- Non-interventional services which form just under one-third of the annual visits. These services include visits for assessments and could include pre- and post-procedural care;
- Procedures which include both invasive and non-invasive treatments are eight per cent of annual volumes and make up just under half-million visits;
- Rehabilitation services, which saw a major leap in volume in this year, currently represent a quarter of total visits reported. These numbers now include both community and hospital-based rehabilitation.

⁶ Emergency Data was drawn using MIS for location of service; the rest of the data were developed using ACCS codes. Also, note that the percentages do not add up due to overlaps between the categories. However, the proportion of overall service categories to annual visits are presented to illustrate growth in various categories and the changing proportions as more services report into ACCS.

ACCS groups related to emergency, non-interventional, procedures and rehabilitation will be reviewed in this report. Given that the vast majority of rehabilitation data has only just been reported, this area will not be reviewed in depth at this time.

Each of the major programs will be reviewed from the perspective of:

1. Overall volumes (reporting) over the last four years, and changes in volumes;
2. Utilization at the population level to define who uses these services;
3. Highlights about services provided that can be discerned from the database looking at a selection of highest volumes of services recorded at the provincial level.

3. EMERGENCY DEPARTMENT VISITS

Reporting of data from Emergency Departments (EDs) has been very consistent and was considered comprehensive even in the earliest years of ACCS reporting. There is a history of coding and reporting emergency services in hospitals that has undoubtedly facilitated the implementation of the ACCS grouper for these services. This is also the richest data for information at this time with a number of service indicators that provide valuable management information.

Each year in Alberta, almost two million services are provided in EDs, and these emergency visits form almost one-third of the visits in ACCS. This reflects the significant role of EDs as safety nets for emergent and urgent care for residents in this province.

3.1 Growth in Reported Visits

According to the ACCS database, in the last four years reported visits to the EDs have grown by about 160,000. When the consolidated table is reviewed, ED visits appear to have reduced in proportion to the total annual ACCS visits only because of increased reporting in all other categories.

As with other services, this increase in volume reflects increased numbers of actual services and also increased compliance in reporting to ACCS. Given the history of reporting for these services, it is possible that increases in the data reported reflect increases in the services provided by these facilities to a growing population.

3.2 Users of Emergency Departments

The table below summarizes the demographic breakdown of users of EDs across four years of reported data.

Table 3.2 Analysis of Emergency Department Data

		1998/99			1999/00		
Gender & age group		Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons
F	<1	12,676	0.8%	67.2	11,964	0.7%	63.5
	1-17	179,567	10.9%	50.3	185,809	10.7%	52.0
	18-64	507,875	30.7%	55.2	540,546	31.1%	57.6
	65+	119,099	7.2%	73.4	126,588	7.3%	76.1
M	<1	16,151	1.0%	81.0	15,201	0.9%	78.7
	1-17	208,263	12.6%	55.6	216,562	12.5%	57.7
	18-64	497,256	30.1%	53.4	524,448	30.2%	55.3
	65+	110,935	6.7%	86.3	117,704	6.8%	89.1
Ungrouped		69	0.0%	7.8	104	0.0%	14.4
Total		1,651,891	100.0%	56.7	1,738,926	100.0%	58.8

		2000/2001			2001/2002		
Gender & age group		Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons
F	<1	12,697	0.7%	70.0	12,468	0.7%	68.0
	1-17	196,047	10.9%	54.9	188,651	10.4%	52.6
	18-64	556,933	30.8%	58.1	561,368	31.0%	57.0
	65+	133,908	7.4%	78.4	137,253	7.6%	78.5
M	<1	16,181	0.9%	85.6	15,755	0.9%	82.7
	1-17	228,455	12.7%	60.8	223,815	12.3%	59.3
	18-64	540,224	29.9%	55.6	548,230	30.2%	54.9
	65+	120,950	6.7%	88.8	124,769	6.9%	89.1
Ungrouped		43	0.0%	6.4	27	0.0%	4.6
Total		1,805,438	100.0%	60.0	1,812,336	100.0%	59.0

Findings

The highest volumes of users of the province's EDs are between the ages of 18 and 64. Since this age group is also the largest proportion of the overall population, this result is to be expected. However, when visits per 100 persons (in each age category) are calculated, the youngest (under one year) and the oldest (over 65 years) have the highest visits per 100 persons.

- *Paediatric use of emergency services:* Just under half million visits a year (a slight growth in this overall age group over the last four years) are for services to those under 17 years of age. Hence, apart from the two tertiary paediatric ED services in Edmonton and Calgary, a large number of children accessed EDs in hospitals all across Alberta.

Infants (under one year old) are high users of EDs, relative to their population size. The total visits for the under-one-year category has remained at approximately 12,000 visits a year. The population in this age category has also stayed steady, with about 38,000 babies under a year old in the population in each of the four years. Male infants have an average of about 83 visits per 100 persons for three of the four years while females have been around 68 per 100 persons.

Visits to the ED for children and youth (between one and 17 years of age) are lower than for infants, but males as a whole continue to be high users. Visits per 100 for this age group vary from year to year, and range from 50.3 visits per 100 persons (females in 1998/1999) to over 59 visits per 100 (for males in 2001/2002).

- *Utilization by older adults:* The total visits for the over 65 has grown slightly over the years. However, there is a marked difference in the utilization of ED services, with males using it at a higher level even though they are only at 44 per cent of the population over 65 years.

Regions clearly need to review utilization of levels for these age groups to determine whether scheduled ambulatory service programs might reduce the need to use EDs at such high rates.

3.3 Services Provided – Emergency Departments

An important question in reviewing utilization is to understand what needs are being met in these facilities. EDs are expected to provide a wide range of services, and traditional mechanisms of identifying services that had the highest volumes are not particularly meaningful. However, as the first step, the top ten diagnostic codes associated with ED visits in the ACCS database were analyzed to determine if they provided insight about frequently used services. These data are summarized in the Table 3.3.

Individual hospital EDs vary in their capacity to handle acuity, and while these data represent the provincial "top ten", it is very likely that these will vary between individual hospitals and regions based on the tertiary nature of the hospital and on available regional infrastructure for supporting emergencies. The highest volumes of services are not often reflective of acuity levels that consume significant resources in EDs with tertiary and quaternary services. These issues will require further analysis at the regional level.

Table 3.3 Top Ten Diagnostic Codes Associated with Visits in Emergency Departments

1998/1999		1999/2000		2000/2001		2001/2002	
Description	Number of visits	Description	Number of visits	Description	Number of visits	Description	Number of visits
Acute URI unspecified site	39,900	Acute URI unspecified site	44,434	Acute URI unspecified site	50,199	Surg/proc not done pt decision	44,705
Attention surg dressing/sutures	34,935	Attention surg dressing/sutures	42,222	Attention surg dressing/sutures	43,139	Acute uri unspecified site	44,082
Asthma unspec no status asth	31,865	Other specified aftercare	32,988	Surg/proc not done pt decision	39,895	Attention surg dressing/sutures	41,574
Unspecified migraine no intract	31,153	Unspecified otitis media	31,701	Other specified aftercare	35,419	Other specified aftercare	37,773
Unspecified otitis media	30,899	Surg/proc not done pt decision	30,641	Unspecified otitis media	32,730	Unspecified otitis media	29,387
Other orthopedic aftercare	27,669	Other orthopedic aftercare	30,563	Other orthopedic aftercare	28,235	Other orthopedic aftercare	28,408
Oth/nos noninfect gastro/colit	24,630	Asthma unspec no status asth	26,205	Oth/nos noninfect gastro/colit	27,461	Oth/nos noninfect gastro/colit	26,053
Surg/proc not done pt decision	24,184	Unspecified migraine no intract	26,011	Asthma unspec no status asth	26,155	Asthma unspec no status asth	24,468
Open wound finger(s) no compl	23,819	Oth/nos noninfect gastro/colit	25,025	Unspecified migraine no intract	24,170	Open wound finger(s) no compl	24,216
Other specified aftercare	22,259	Open wound finger(s) no compl	23,536	Subac scleros panencephalitis	23,529	Subac scleros panencephalitis	23,188
Total Top 10	291,313	Total Top 10	313,326	Total Top 10	330,932	Total Top 10	323,944
TOTAL EMERGENCY VISITS 1,651,891		TOTAL EMERGENCY VISITS 1,738,926		TOTAL EMERGENCY VISITS 1,805,438		TOTAL EMERGENCY VISITS 1,812,336	

Findings

The table reveals that the top ten diagnostic codes only make up 18 per cent of the total ED discharges in the province. Diagnoses included in this selection provide the following information:

- Presentations for asthma, migraine, non-infectious gastroenteritis and colitis, otitis media, and urinary tract infections appear within the top ten for all the years reviewed.
- Treatment for open wounds and the need for sutures and dressings form the second highest category of emergency need.
- Visits for non-emergency "after-care" have grown each year and exceeded 60,000 visits in 2001/2002. Visits for "other specified aftercare" in particular rose from tenth place in 1998/1999 to fourth highest volumes in 2000/2001 and 2001/2002, outstripping "orthopaedic aftercare" which has been sixth highest in volumes for all four years. Further review is required to determine the efficiency of these services in an emergency setting.
- The category for "surgery or procedure not done per patient decision" pertains to patients who left without being seen, with some possibly leaving against medical advice. This category had its largest volumes in 2001/2002 and may indicate the need for further follow up.

Regions can use this data in several ways. Regions could assess how their top ten diagnoses align or differ from the provincial picture, and how differences relate to their ED capabilities and/or population needs. In addition, regions could use ED data to identify primary and secondary prevention needs within their region, specifically to improve chronic disease management (for asthma, otitis media, urinary tract infections, for example).

ED services data in ACCS are further defined by the following features: the presence of scheduled and non-emergency services in EDs; acuity as represented by triage levels for EDs (which is an optional reporting requirement under ACCS at this time); and visit disposition information that describes the status of the patient upon discharge from the ED.

3.3.1 *Scheduled Care in EDs*

The use of EDs for scheduled or non-emergency care is an important issue particularly for smaller hospitals. In most instances these reflect appropriate use of a fixed resource. Specific services include "after care" (cast clinics for patients with fractures as well as "other after care") and chemotherapy which is now a major service within provincial EDs. Chemotherapy in particular appears in the most recent data with close to 100,000 visits (but is not included in the top ten since it does not appear all four years). The issue for regions is to ensure that these services do not exacerbate waiting times for service for true emergency needs.

3.3.2 *Emergency Triage Levels*

ACCS provides the option for EDs to report triage levels to reflect the acuity of ED presentations. The ability to triage ED visits into five levels to reflect clinical acuity could provide regions with a tool for differentiating multiple hospital emergency departments within a given region. However, not all EDs provide these triage levels, or use consistent definitions. Streamlining and using consistent triage definitions would add value to the current database. Triage levels are supposed to reflect the following levels of acuity of need:

TRIAGE LEVEL	LEVEL OF ILLNESS/ ACUITY
1	Resuscitation
2	Emergency
3	Urgent
4	Semi-urgent
5	Non-urgent
9	Unavailable

If these levels were accurately coded and submitted, the provincial and regional administration would have a very useful tool to understand the role of acuity within different hospitals, and to make decisions about variations in resource allocations for EDs based on differences in their ability to manage different acuity levels.

3.4 Visit Disposition in the ED

Emergency data also includes "visit disposition" information that can provide useful management information. Visit disposition in the ED data refers to the circumstances under which approximately two million patients who present in the province's EDs are discharged from the ED and can act as indicators of how EDs are coping with the volumes of emergency visits.

3.4.1 Categories of Visit Disposition

The following list is currently available in ACCS for all ED visits. It describes different possible outcomes for patients accessing ED services at the end of that service event:

1. Discharged visit concluded
2. Discharge from program or clinic, will return for further care
3. Left against medical advice
4. Service recipient admitted as an inpatient to critical care unit or operating room (OR) in own facility
5. Service recipient admitted an inpatient to other area in own facility
6. Service recipient transferred to another acute care facility (includes psychiatric, rehabilitation, oncology and paediatric unit/hospital)
7. DAA - Service recipient expired in ambulatory care service
8. DOA - Service recipient dead on arrival to ambulatory care service
9. Left without being seen (not seen by a care provider)

Table 3.4 Disposition of Patients from Emergency Departments

Code	Description	1998/1999		1999/2000		2000/2001		2001/2002		Growth from 1998/1999 to 2001/2002
		Number of visits	Per cent distribution	Number of visits	Per cent distribution	Number of visits	Per cent distribution	Number of visits	Per cent distribution	
1	Discharged - visit concluded	1,457,592	88.2%	1,530,986	88.0%	1,594,094	88.3%	1,583,418	87.4%	8.6%
2	Discharge from program or clinic - will return for further care	7,112	0.4%	8,214	0.5%	7,621	0.4%	11,066	0.6%	55.6%
3	Left against medical advice	7,569	0.5%	13,899	0.8%	20,943	1.2%	41,647	2.3%	450.2%
4	Service recipient admitted as an inpatient to critical care unit or OR in own facility	14,282	0.9%	13,955	0.8%	14,072	0.8%	12,733	0.7%	-10.8%
5	Service recipient admitted an inpatient to other area in own facility	128,102	7.8%	135,256	7.8%	130,459	7.2%	133,390	7.4%	4.1%
6	Service recipient transferred to another acute care facility (includes psychiatric, rehab, oncology and paediatric)	14,417	0.9%	15,830	0.9%	17,472	1.0%	21,183	1.2%	46.9%
7	DAA - service recipient expired in ambulatory care service	1,076	0.1%	1,052	0.1%	1,091	0.1%	1,155	0.1%	7.3%
8	DOA - Service recipient dead on arrival to ambulatory care service	649	0.0%	606	0.0%	577	0.0%	586	0.0%	-9.7%
9	Left without being seen (not seen by a care provider)	21,085	1.3%	19,125	1.1%	19,106	1.1%	7,158	0.4%	-66.1%
Ungrouped		7		3		3				
Total		1,651,891	100.0%	1,738,926	100.0%	1,805,438	100%	1,812,336	100%	9.7%

Findings

Disposition Codes are starting points to determine whether there are problems that warrant further investigation. The data tell us that 88 per cent of recipients of service are in the "discharged – visit concluded" category. (There was a slight fall in this category in 2001/2002 to 87.4 per cent but consistency until this point indicates that this may not be a trend.) This reflects that a service was sought and received with a formal conclusion in the form of a discharge. The volume of visits in this category grew by 8.6 per cent and represents the majority experience of those accessing ED services.

Incidences of Code 9 reduced significantly over the years implying that fewer patients left provincial EDs without being seen. There is some indication that the drop in these numbers may reflect recent changes in the processing of patients by EDs. If patients are registered into the ED and then leave, they are recorded as "left without being seen". However, if patient registration is deferred until after triage, patients may choose to leave (after triage) if they are advised that their condition is not emergent, or if they are told that there is a significant wait to see an emergency physician at that time. These patients may not be recorded as a Code 9 disposition. Hence a change in process could account for a reduction in this data. The data, however, does provide a useful indicator for further follow up to determine the exact reason for such fluctuations.

Code 4 (which refers to service recipient admitted as an inpatient to critical care unit or OR in own facility) and Code 5 (which affects the service recipient admitted as an inpatient to other area in own facility) both reflect admissions to hospitals through EDs. Code 4 patients have always been less than 1.0 per cent of total visits, and these have actually decreased over the years. Code 5 volumes, however, have grown slightly in absolute numbers, but have decreased slightly in overall proportion to total visits. In 2001, they were 7.4 per cent of total visits. Although further investigation is required before these can be identified as problems, admissions through the ED have been used to bypass waiting lists in the past.

Code 6 refers to transfers between facilities, and these are a small portion of the total visits (1.2 per cent). The growth in the data is slight and could be the result of better reporting or the changing roles and consolidation of services between facilities in a region.

Codes 7 and 8 deal with deaths of patients either enroute to the ED, or on arrival. These are very small in number, with a very small increase in absolute numbers in 2001/2002. They are less than 0.1 per cent of the total visits to EDs.

Conclusion

Emergency services are well represented in the ACCS database. In addition to providing a wealth of clinical and patient-related information, the data also has additional features which are useful to regions in tracking ED utilization, such as disposition codes and triage levels.

Regions can develop comparative reports between different EDs within their boundaries to evaluate variations in service levels, to assess the use of EDs for non-emergency services, and to determine how best to deliver services to meet patient needs. With ACCS data, regions can evaluate patient utilization levels, look at repeat emergency use and determine what programs are required to reduce inappropriate use of EDs. The addition of waiting times as required since 2000/2001 provides further information to both regions and to Alberta Health and Wellness to document levels of access to ED services.

4. NON-INTERVENTIONAL SERVICES

The group of services with the second highest volume of ambulatory services in ACCS are described as "non-interventional" services. These represent specialty services that may be provided by medical or non-medical providers and may include diagnosis and treatment, assessment, follow-up, pre-procedural services, post procedural care, and patient and family education.

Visits for non-interventional services have grown steadily over the years to total 1.5 million reported in 2001/2002.

Table 4.1 Non-Interventional Services

	1998/1999	1999/2000	2000/2001	2001/2002
Category of service	Total visits			
Endocrine	46,832	45,409	52,373	51,177
Obstetrics	50,628	53,040	55,105	58,210
Ophthalmology	67,840	75,363	78,583	86,465
Neurology	95,857	94,825	99,275	99,767
Respiratory	125,772	118,407	123,912	123,329
Genitourinary	95,337	101,354	118,855	126,250
Cardiology Services	100,447	100,936	120,076	128,339
Gastroenterology	147,301	151,676	165,339	173,377
Ear Nose and Throat	168,552	179,221	195,920	182,761
Musculoskeletal	188,318	198,218	214,939	226,511
Trauma	289,790	295,252	298,353	309,046
TOTAL⁷	1,376,674	1,413,701	1,522,730	1,565,232

Utilization levels for these services will vary within the population and also depend on type of specific services that are being offered in a region. The highest volumes are for care connected with trauma, musculoskeletal, ear nose and throat (ENT) and gastrointestinal (GI) care. For procedural and surgical patients, these reflect pre- and post-procedural care.

On the other hand, visits for endocrinology services reflect the level of patient education currently being delivered to manage diabetes or hypertension. Obstetrics includes prenatal care as well as education, and could be one explanation for the higher use of ambulatory services among women in the adult age categories.

⁷ Oncology appears in this category, but the data was deemed unreliable because of various changes incorporated to the definition of terms and in the way these cells have been adapted for use in IV therapy.

Table 4.2 Utilization of all Non-Interventional Services

		1998/1999			1999/2000		
Gender & age group		Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons
F	<1	10,914	0.8%	57.9	10,777	0.8%	57.2
	1-17	156,689	11.4%	43.9	166,776	11.8%	46.7
	18-64	452,619	32.9%	49.2	453,907	32.1%	48.4
	65+	101,924	7.4%	62.8	107,019	7.6%	64.4
M	<1	13,009	0.9%	65.3	12,848	0.9%	66.5
	1-17	174,994	12.7%	46.7	188,554	13.3%	50.2
	18-64	375,282	27.3%	40.3	380,541	26.9%	40.1
	65+	91,190	6.6%	71.0	93,203	6.6%	70.5
Ungrouped		53	0.0%	6.0	76	0.0%	10.5
Total		1,376,674	100.0%	47.3	1,413,701	100.0%	47.8

		2000/2001			2001/2002		
Gender & age group		Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons
F	<1	12,064	0.8%	66.5	12,474	0.8%	68.1
	1-17	176,657	11.6%	49.4	178,737	11.4%	49.8
	18-64	483,093	31.7%	50.4	496,986	31.8%	50.4
	65+	121,636	8.0%	71.2	126,241	8.1%	72.2
M	<1	13,878	0.9%	73.4	14,287	0.9%	75.0
	1-17	201,496	13.2%	53.6	207,842	13.3%	55.1
	18-64	408,978	26.9%	42.1	419,602	26.8%	42.0
	65+	104,889	6.0%	77.0	109,025	7.0%	77.9
Ungrouped		39	0.0%	5.8	38	0.0%	6.5
Total		1,522,730	100.0%	50.6	1,565,232	100.0%	50.9

Findings

In terms of simple volumes of services, the 18-64 age group received almost one million of the 1.5 million services in 2001/2002 which makes them the group with the highest utilisation of these services.

There has been steady growth across all age groups in the four years of data reviewed for this program. Interestingly, growth within each age category has also been steady so that within any given year, the percentage distribution of visits within age and gender groups has hardly varied and has kept pace with increases in reported volumes from 1998/1999 to 2001/2002.

On average, across the four years, there are about 49 visits per 100 persons. This average varies significantly between the age and gender groups in the population. In 2001/2002, the youngest and the oldest age categories had the highest number of services per 100 persons, with females over 65 averaging around 72 and males over 65 averaging around 78 visits per 100 persons. Hence, in terms of intensity of use within the four age categories, the older male adult has the highest rates at 78 per 100.

At the aggregate level, it is difficult to comment on variations in service, or even identify major categories of service that have relevance for all regions. As noted earlier, regional capacity to provide sub-specialist services (as implied by trauma or GI) varies significantly between regions and it is highly likely that these services are disproportionately represented in the more urban areas. Most of them are connected with medical specialist support, and further studies are warranted to determine how these ambulatory programs extend the capacity of sub-specialists to provide their services.

Conclusion

Further detailed review would be required to link the numbers of visits supported by regional hospitals to provide pre- and post-surgical care within existing ambulatory care programs. Currently, there are five regional hospitals in Alberta: Lethbridge Regional Hospital, Medicine Hat Regional Hospital, Red Deer Regional Hospital Centre, Northern Lights Regional Health Centre, and Queen Elizabeth II Hospital.

Similarly, care requiring medical and surgical specialists in a complex tertiary environment could be looked at.

Regions may also wish to evaluate the actual services provided in each of these categories and to determine how well these services provide alternatives to hospitalization.

Finally, if patient education and monitoring were involved, the region would also have a built-in mechanism to track outcomes and effectiveness of such programs.

5. ACCS PROCEDURES

Growth in day procedures (surgical as well as non-invasive) was a major factor in highlighting the need to group, classify and consistently report these services. With regions under pressure to reduce hospital lengths of stay, the constant demands for additional funding, and the need for new (different) facilities to provide these high volume services, the need for improved information about procedural services was a high priority under ACCS.

The database demonstrates that this is an area that has grown significantly. Total growth in procedures between 1998/1999 and 2001/2002 was in excess of 66,000 visits, with an annual total of 469,037 visits reported in 2001/2002. While these numbers are small in comparison to the other services reviewed in this report, they reflect the significant success of the policy to encourage more procedural care to occur outside the inpatient setting.

There are some data fluctuations that should be highlighted and preclude the development of any simplistic "trend" analysis with this data. Variations in volumes for procedures are particularly evident in the data reported between 1999/2000 and 2000/2001. Volumes actually decreased (although by only a thousand visits) between these years. Between 1998/1999 and 1999/2000, visits grew by 39,000; between 2000/2001 and 2001/2002 they grew by about 28,000 visits. Much more detailed analysis will be required to determine what occurred to cause this variance. The reasons for these are not easily apparent from the aggregate data.

In order to highlight the major services provided in Alberta that are described as procedures in ACCS, the top 20 procedures were extracted from the database. These top twenty high volume procedures reflect 71 per cent of the total annual procedures and are therefore very representative of the vast majority of services included in this category. Part of the reason for moving beyond the top ten approach in looking at procedures was that the same procedure in ACCS can be grouped into different cells to reflect variations in clinical resource use that are influenced by intensity or duration of service, type of anaesthetic used, and/or the age of the patient. The top 20 procedures enable a wider scope of review and confirm those that are truly high in volumes.

The following table highlights ACCS procedures (excluding dialysis and other Province Wide Services) that were in the top 20 in 2001/2002 data.

Table 5.1 Top 20 ACCS Procedures (1-10) 1998/1999 to 2001/2002

1998/1999		1999/2000		2000/2001		2001/2002	
ACCS group description	Total visits	ACCS group description	Total visits	ACCS group description	Total visits	ACCS group description	Total visits
Skin procedures, local anaesthetic	56,430	Skin procedures, local anaesthetic	56,735	Skin procedures, local anaesthetic	48,702	Skin procedures, local anaesthetic	52,700
Endoscopy GI - medium	39,090	Endoscopy GI - medium	41,167	Endoscopy GI - medium	47,525	Endoscopy GI - medium	49,185
Skin procedures, other anaesthetic	35,955	Skin procedures, other anaesthetic	35,624	Skin procedures, no anaesthetic	44,916	Skin procedures, no anaesthetic	40,715
Manipulations	18,588	Transfusions	29,294	Transfusions	24,031	External eye	21,158
External eye	17,694	External eye	18,901	External eye	19,230	Manipulations	19,227
Bladder & urethral procedures, local anaesthetic	16,324	Manipulations	18,677	Manipulations	18,344	Transfusions	18,482
Minor gyn procedures	11,553	Bladder & urethral procedures, local anaesthetic	15,879	Minor gyn procedures	13,723	Lens procedures	17,347
Evacuations	10,119	Minor gyn procedures	12,765	Bladder & urethral procedures, local anaesthetic	11,208	evacuations	14,291
Angiography 18 + years	8,168	Evacuations	10,289	Lens procedures	10,698	Minor gyn procedures	14,246
Endo & gyn procedures	8,060	Lens procedures	9,050	Bladder & urethral procedures, local anaesthetic	9,724	Bladder & urethral procedures, local anaesthetic	14,169

1 Table 5.1 continued Top 20 ACCS Procedures (11-20) 1998/1999 - 2001/2002

1998/1999		1999/2000		2000/2001		2001/2002	
ACCS group description	Total visits	ACCS group description	Total visits	ACCS group description	Total visits	ACCS group description	Total visits
Lens procedures	7,655	Angiography 18 + years	8,712	Evacuations	9,518	Dental Surgery	9,121
Endoscopy GI - low	7,487	Endo & gyn procedures	8,237	Endo & gyn procedures	8,249	Cardiac catheter 18 + years	9,045
Knee procedures	7,378	Closed reductions	7,763	Closed reductions	7,997	Knee procedures	8,137
Closed reductions	7,270	Cardiac catheter 18 + years	7,620	Knee procedures	7,977	Closed reductions	8,123
Nasal procedures	6,640	Endoscopy GI - low	7,619	Cardiac catheter 18 + years	7,608	Endo & gyn procedures	7,739
Transfusions	6,521	Knee procedures	7,113	Nasal procedures	7,463	Biopsy, percutaneous	7,516
Cardiac catheter 18 + years	6,479	Biopsy, percutaneous	7,067	Endoscopy GI - low	7,117	Nasal procedures	7,213
Biopsy, percutaneous	6,413	Nasal procedures	7,051	Biopsy, percutaneous	7,081	Orbital & other eye	6,344
Gastro-Intestinal related procedures	5,352	Bladder & urethral procedures, other anaesthetic	5,230	Hernia	5,379	Endoscopy GI - high	6,201
Bladder & urethral procedures, other anaesthetic	4,442	Uro diagnostic procedures	5,110	Endoscopy GI - high	5,239	Endoscopy GI - low	5,903
Top 20 total	287,618		319,903		321,729		336,862
Total procedures	402,064		441,684		440,716		469,037

Findings

- "Skin procedures" emerge in this list as a major service across the province. Two ACCS cells for these procedures appear in the top three high volume categories for all four years reviewed.
- The ACCS cell related to endoscopies (medium) ranks in second place for all four years. Three other GI procedures also appear in the top twenty list, making it a major service within the province.
- Lens procedures (cataract surgery) has steadily increased in reported volumes, and moved from 11th place in 1998/1999 to seventh place in 2001/2002.
- Other clinical specialties represented in these high volume cases are cardiology, orthopaedics, gynecology, urology, dental surgery and ear, nose and throat.

An additional issue that needs to be managed is the variety of ACCS cells available to represent different levels of resource use. "Type of anaesthetic", for example, has created two separate categories of skin procedures that are both in this list of highest volumes, while there are three ACCS cells related to endoscopies. These represent different costs and resource needs.

What this means is that for each procedure, the amalgamation of several related ACCS cells will be required to provide comprehensive totals for that procedure.

5.1 Utilization of Procedures

Procedures vary between various age groups and between genders, and the following tables illustrate the rates of utilization within the provincial population. Procedures may be performed in emergency departments, in day surgery centres, in specialised procedure rooms, in hospital clinics or in day treatment areas.

The main feature about the service is that patients of all ages and genders receive treatment and are discharged on the same day.

Table 5.2 Utilization of Procedures – 1998/1999 to 2001/2002

		1998/1999			1999/2000		
Gender & age group	Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons	
F	<1	564	0.1%	3.0	639	0.1%	3.4
	1-17	23,633	5.9%	6.6	24,700	5.6%	6.9
	18-64	128,146	31.9%	13.9	143,255	32.4%	15.3
	65+	42,554	10.6%	26.2	47,827	10.8%	28.8
M	<1	2,685	0.7%	13.5	2,747	0.6%	14.2
	1-17	35,133	8.7%	9.4	36,191	8.2%	9.6
	18-64	125,992	31.3%	13.5	137,448	31.1%	14.5
	65+	43,349	10.8%	33.7	48,866	11.1%	37.0
Ungrouped	8	0.0%	0.9	11	0.0%	1.5	
Total	402,064	100.0%	13.8	441,684	100.0%	14.9	

		2000/2001			2001/2002		
Gender & age group	Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons	
F	<1	481	0.1%	2.7	669	0.1%	3.7
	1-17	23,623	5.4%	6.6	26,109	5.6%	7.3
	18-64	143,011	32.4%	14.9	150,813	32.2%	15.3
	65+	47,936	10.9%	28.1	54,209	11.6%	31.0
M	<1	2,487	0.6%	13.2	2,605	0.6%	13.7
	1-17	35,396	8.0%	9.4	38,146	8.1%	10.1
	18-64	137,787	31.3%	14.2	142,640	30.4%	14.3
	65+	49,990	11.3%	36.7	53,836	11.5%	38.5
Ungrouped	5	0.0%	0.7	10	0.0%	1.7	
Total	440,716	100.0%	14.7	469,037	100.0%	15.3	

*Note: Procedures include all ACCS groups from 1.1 to 71, with the exception of groupers that are Province Wide Services

Findings

The following patterns of utilization emerge within the different age and gender categories:

- Infant males appear to have significantly higher procedures than females – consistently more than 2,000 each year. The difference is even more dynamic when one uses the “Visits per 100 persons” calculations, where males have about 14 visits per 100 population, compared to fewer than four each year for females.
- This difference continues with males in the one-to-17 age group having more procedures than females with in excess of 11,000 additional procedures for paediatric males each year. This difference is also reflected in the higher visits per 100 within male and female categories.
- In the adult category (18-64), the situation reverses, with females having more procedures. In numbers, the size of the difference varies from 2,000 in the first year, to 8,000 more procedures in females in 2001/2002. Even when “Visits per 100 persons” is used, females consistently have more visits than males for within that age group.
- In older adults, males have more procedures each year. In absolute numbers, there is a small increase for women in the last year of data available, but as represented by visits per 100 persons, males over 65 continue to have a higher rate of procedures.

Conclusions

It is perhaps most important to remember while reviewing these data that many of these procedures were, just a decade ago, admitted to hospital for service as inpatients. The data actually represents improved capacity in the health system (more procedures can be performed if patients do not need to be admitted for services) as well as savings from shifting treatment outside of the inpatient hospital setting.

These findings provide evidence of the need for further analysis to determine exactly which procedures affect utilization in the population (between age groups and genders), as well as inter-regionally, and how these differences should influence planning for services. The ability to compare provider types involved in different procedures is another useful tool for regions. ACCS groups can enable further analysis and provide the clinical and demographic basis for these variations. Regions also have the opportunity to address the resource issues connected with similar procedures provided in multiple settings.

In the long run, both AHW and the regions might consider tools that facilitate linkages between various services and thus may need to link different ACCS cells. For example, some procedures occur in conjunction with extensive diagnostic tests and/or non-interventional services. If these can be easily linked through patient identifiers or other means, Regions might be able to access the full costs related to pre- and post-procedural care.

6. REHABILITATION SERVICES

Rehabilitation Services have emerged as a major component of services within ACCS, with roughly 25% of the total volumes or 1.4 million services. The availability of reporting of rehabilitation in both community-based and hospital-based settings is a major achievement for ACCS in Alberta. However, these data are still very much in the evolutionary form at this time and compliance in the community-based service area has been very recent.

Because of the extreme variability with which this data has been incorporated into ACCS, services from the 2001/2002 data are presented here for illustration purposes. The top 20 cells for rehabilitation actually form more than 80% of the total activity. Physical therapy is clearly the dominant group of services in the ACCS database. These are followed by speech and language therapy and occupational therapy.

Table 6.1 Rehabilitation Services 2001/2002

ACCS GROUPER DESCRIPTION	TOTAL NUMBER OF VISITS (TOP 20 ACCS GROUPS)
Physical therapy	970,030
Speech therapy	187,200
Occupational therapy	145,296
Respiratory therapy	58,285
Audiology	11,517
Recreational therapy	11,764
Total top 20	1,384,092
Total rehabilitation services	1,440,405

Growth in reported data has been significant over the last four years. The following table summarizes utilization by age and gender, and indicates that every age group experienced a major increase in volumes. In each year represented below, the highest users of service have been in the over-65 age group. Even in this group, the rate of use per 100 persons has more than doubled in the four years under review here.

Another group that reports increased services is in the younger age groups (18 to 64). Their numbers per 100 persons have also increased, with men and women using rehabilitation at almost the same rates in the first year of data, but with women showing significantly increased uses of rehabilitation in 2001/2002.

Table 6.2 Users of Rehabilitation Services

		1998/1999			2001/2002			
Gender & age group		Number of visits	Per cent distribution	Number of visits per 100 persons	Number of visits	Per cent distribution	Number of visits per 100 persons	Growth
F	<1	1,276	0.20%	6.8	2,960	0.20%	16.2	1,684
	1-17	54,267	10.40%	15.2	135,125	9.40%	37.7	80,858
	18-64	125,026	24.00%	13.6	434,310	30.20%	44.1	309,284
	65+	81,398	15.60%	50.1	200,475	13.90%	114.7	119,077
M	<1	1,535	0.30%	7.7	2,944	0.20%	15.5	1,409
	1-17	83,728	16.10%	22.3	208,371	14.50%	55.2	124,643
	18-64	119,325	22.90%	12.8	329,298	22.90%	33.0	209,973
	65+	53,845	10.40%	41.9	126,301	8.80%	90.2	72,456
Ungrouped		5	0%	0.6	621	0%	106.7	616
Total		520,405	100%	17.9	1,440,405	100%	46.9	920,000

Conclusion

Rehabilitation data requires further study and analysis, particularly with the recent availability of community-based rehabilitation reporting. Regions have a major opportunity to take the next step and look at the differences in utilization rates and/or for similarities in service between community-based and hospital-based rehabilitation. In addition, Regions can develop and establish outcomes and benchmarks using clinical data provided in ACCS.

7. USES AND USERS OF ACCS DATA

The following highlights major users and the uses of ACCS at this time.

Table 7.1 Uses and Users of ACCS Data

ALBERTA HEALTH AND WELLNESS	
Population-based funding formula development	ACCS is extensively used in the population-based funding formula. At present this represents more than \$700 million (see discussion later). Export/import adjustments amount to more than \$116 million.
Costing Function Team	Ambulatory Care data is used within the provincial costing team.
Other	Strategic Planning Division uses ACCS data to support health authority and government planning. Health Accountability Division uses ACCS data to evaluate and report on performance, to develop standards and measures and in research. Population Health uses ACCS data for health surveillance purposes.
REGIONS	
Regional health authority, CEO	Use of ACCS varies at senior levels. Import/export data has provided useful information for some regions to identify opportunities for enhancing local services.
Service/program levels	Use of ACCS within specific services varies from region to region, and with the size of the service. Current ways in the data is used are: Workforce mix and volumes – using provider type information for budgeting and forecasting of resource needs Overall volumes of visits – monitor activity, with additional refinements for “main diagnosis” and ability to describe where their increases have occurred and for what kinds of patients Patient demographics – including single and multiple patient visits ED waiting times ED triage levels and patient disposition analysis.
OTHER	
RESEARCH	Various academic groups are responding to the availability of this data for research and its potential is being increasingly recognised in the research community.

AHW has been the most proactive in its use of ACCS by incorporating ACCS data in the provincial funding formula. In this as in other planning, research, and standards development activities, ACCS has affected policy and funding decisions, and has thus served the purpose for which it was developed.

7.1 ACCS and the Provincial Population Funding Formula

The greatest use of the ACCS data has been in the Alberta Population-Based Funding Formula Methodology. Prior to the availability of this data, estimates for hospital-based ambulatory care were derived from fee-for-service claims to physicians who provided services in emergency, day procedures, clinics and day services. This was an inadequate proxy since it did not often reflect the use of hospital staff resources in a number of supporting roles that are not included in physician claims data. Examples of where non-physician resources are used outside of medical involvement are in the costs related to therapies, patient education programs, and dialysis programs.

With the implementation of ACCS, the need for fee-for-service data used to top up regional ambulatory care records diminished significantly. In 1997/1998, the fee-for-service records accounted for approximately 20.0 per cent of the total ambulatory care records. For 2002/2003 funding year, the amount dropped to 5.3 per cent. The fee-for-service top-up provision was totally eliminated in the 2003/2004 funding year.

7.2 ACCS Costing

The Alberta Costing Partnership has been in place for five years. The partnership originally consisted of six health regions working in conjunction with Alberta Health and Wellness. Since then, the number of health regions contributing costing information has declined to three (i.e. Calgary, Capital and the former Crossroads). The Costing Function Team is responsible for generating patient specific inpatient cost data that is used by CIHI to build Resource Intensity Weights (RIWs). Outpatient activity is weighted using Alberta-developed average ACCS costs.

According to *Health Costing in Alberta 2002 Annual Report*, detailed costs were reported for 1.4 million records which currently represents 25 per cent of the ambulatory care activity in Alberta. The Capital Region provided 86 per cent of the costs data, with Calgary contributing eight per cent and Crossroads six per cent. Cost data are blended with prior year costs to smooth out fluctuations in costs between years and to provide data for low volume cases.

7.2.1 Fund Pool for Ambulatory Care

The first step of the Population-Based Funding Formula methodology is to collect comprehensive data on all regional health authority patient activity. Data coverage of regional health service activity is relatively comprehensive and includes acute hospital inpatient care, hospital-based ambulatory care, continuing care and home care.

The next step in the population formula methodology is to determine an RHA expenditure for each of the patient activities collected in the first step. In this step, costing data is primarily used to assign relative weights to the activity.

At this point, the activity and cost weight data collected in the first and second step are not comparable or combinable. To achieve comparability, the relative cost weights in each sector must be scaled according to pool size. Thus the final step is to use the RHA historical expenditure data as reported on the Management Information System (MIS) to determine the appropriate funding pool size across each of the activity (sectoral) areas.

For the 2001/2002 data year (2003/2004 funding year), the ambulatory care pool amounted to \$868.6 million or 25.1 per cent of the total dollars available for formula funding to regional health authorities. Continuing care amounted to \$692.6 million or 20.0 per cent. Home care amounted to \$315.1 million or 9.1 per cent while prevention, promotion and protection amounted to \$138.0 or 4.0 per cent of the funding pool. The total funding pool for this fiscal year was \$3,457.7 million. Inpatient services comprised 41.7 per cent of this total – a significant change from the days when inpatient costs were 70 per cent of total expenditures in the health care sector.

Because ACCS data now provides demographic information at the level of age and gender, this data is used to develop utilization statistics, which then influence the capitation rates derived for each age category.

7.2.2 ACCS and Import/Export Adjustment

Since population formula funding is allocated solely according to the population which resides in a region, an Import/Export funding adjustment is made to the allocations to compensate regions for individuals who cross regional boundaries for health care services.

The role ACCS plays in terms of the import/export funding adjustment is significant. While the average ACCS cost for the 2003/2004 funding year was only \$168 per visit, of the total provincial \$319.3 million import/export funding adjustment (i.e. acute care, ambulatory care and long term care sectors), the number of ACCS records comprised 93.3 per cent of the provincial import/export volume and 32.4 per cent of the provincial import/export costs.

With the consolidated regional structure set for implementation in 2003, the information about the flow of patients will continue to be an important consideration for regions for different reasons. Historical information will provide regions with patterns of access issues, and help them to determine how to create new service delivery maps and outreach or satellite programs for the future.

This data could continue to be useful to estimate and quantify capacity within various institutions in the newly configured regions as well as to determine where to shift services in future.

8. THE NATIONAL SCENE

The review of ACCS data has demonstrated that there are significant ambulatory service programs being provided in Alberta. At this time, Alberta leads all provinces in the comprehensive nature of its reported database. No other province has been able to work with service providers to implement such a comprehensive ambulatory care reporting system.

There is a national movement to improve reporting of ambulatory services in Canada led by the Canadian Institute of Health Information (CIHI) and the development of the National Ambulatory Care Reporting System (NACRS). This national grouper was built on the Alberta ACCS prototype when it was shared with CIHI in 1998. Alberta also provided the bulk of the costing data used to calibrate relative values for NACRS. Since then, CIHI has created its own version of the grouper, incorporating the needs of its stakeholders in all provinces.

Ontario hospitals are currently using NACRS for reporting emergency department visits. In April 2003 Ontario hospitals began reporting under this system for day surgery, cancer, renal, and cardiac catheterization. CIHI estimates this will provide nine million records to populate the CIHI NACRS database.

Nova Scotia, British Columbia, and Prince Edward Island each have two or three hospitals that are already or are considering reporting emergency visits.

None of the other provinces have been able to coordinate ambulatory care reporting in the comprehensive manner that Alberta has at this time.

9. CURRENT AND FUTURE OPPORTUNITIES

9.1 Current Status

This review has looked at ACCS data from a global perspective, and in most areas, the report has referred to the utility of looking at additional detail. The purpose of this report was to assess the state of ambulatory care in Alberta, using ACCS data. Alberta is the only province in the country with a comprehensive ambulatory care database, with a capacity to include hospital-based and community-based services. The ACCS classification system is effective in classifying services into resource homogenous groups. AHW has an electronic submission capability that has been very responsive to Regional needs and allows users to access data easily.

As the steward of this grouper, AHW regularly seeks user input to review and update its grouper capacity and scope. ACCS continues to align, where possible, with inpatient coding and MIS coding requirements. Most significantly, AHW has partnered with the regions to successfully manage the conversion of ICD-9-CM to ICD-10-CA/CCI into ACCS.

This review has also illustrated that significant information is available to the province and to regions about services and utilization of ambulatory care even if data is used at the most aggregate level. Each program area can be further examined to understand users of services and to develop benchmarking and outcomes-based indicators from this data.

Templates for Further Analysis of ACCS

As a starting point, this report provides a series of templates and provincial utilization benchmarks for major service categories. Regions can use these to assess how their performance within each category meets provincial experience. Furthermore, every service reporting into ACCS provides detailed information about patients, clinical basis for care, and the type of provider(s) involved in that treatment, education, service or rehabilitation. This level of detail could provide significant opportunity for research into health service utilization not possible prior to ACCS, or in fact possible in any other province in Canada.

Further areas of analyses at the regional level include:

- Benchmarking between programs (such as disposition levels in emergency departments), use of different service providers for the same services, or the effectiveness of ambulatory programs designed to prevent hospitalization;
- Outcomes studies of chronic disease management programs;
- Variations in resource use for similar services within the region;
- Utilization reviews that assesses discrete patients and numbers of visits by individual patients to identify potential over- and/or under-utilization of key services;
- Development of performance targets for similar services;
- Planning, service delivery, duplication, and capacity issues under new regional boundaries.

9.2 Future Decisions Regarding Grouper Enhancement

9.2.1 Expanding the Scope and Uses of ACCS

Alberta Health and Wellness, as the steward of ACCS, has managed this grouper and the data. This has included the need to keep the grouper up to date, incorporating reporting and coding changes, converting to IDC-10-CA/CCI, and reviewing the cells for homogeneity and for relevance in the context of rapidly changing service delivery models.

ACCS could also be the basis of integrated "programmatic" study in future, with the potential to provide regions and AHW comprehensive utilization and costing information. This can be achieved through the following:

- *Extending the scope of ACCS:* using ACCS for all ambulatory reporting in the province will increase the comprehensiveness of the database and allow for more comparisons between regions and patient utilization levels;
- *Developing case-mix values:* expanding the current average cost schedule to relative case weights, and making these weights relate to inpatient case weights as well could provide significant benefits to both funding and costing programs in future;
- *Continuum of care links:* links with inpatient case-mix and ultimately to home care and physician billing could be invaluable for providing comprehensive costs for all outpatient services, as well as information about the effectiveness of chronic disease management programs. This in turn could identify outcomes measures, as well as the need for additional or different resources to manage these needs.

9.2.2 Refinements and Further Uses of ACCS

The following represent a selection of issues that need to be reviewed for possible incorporation into future changes:

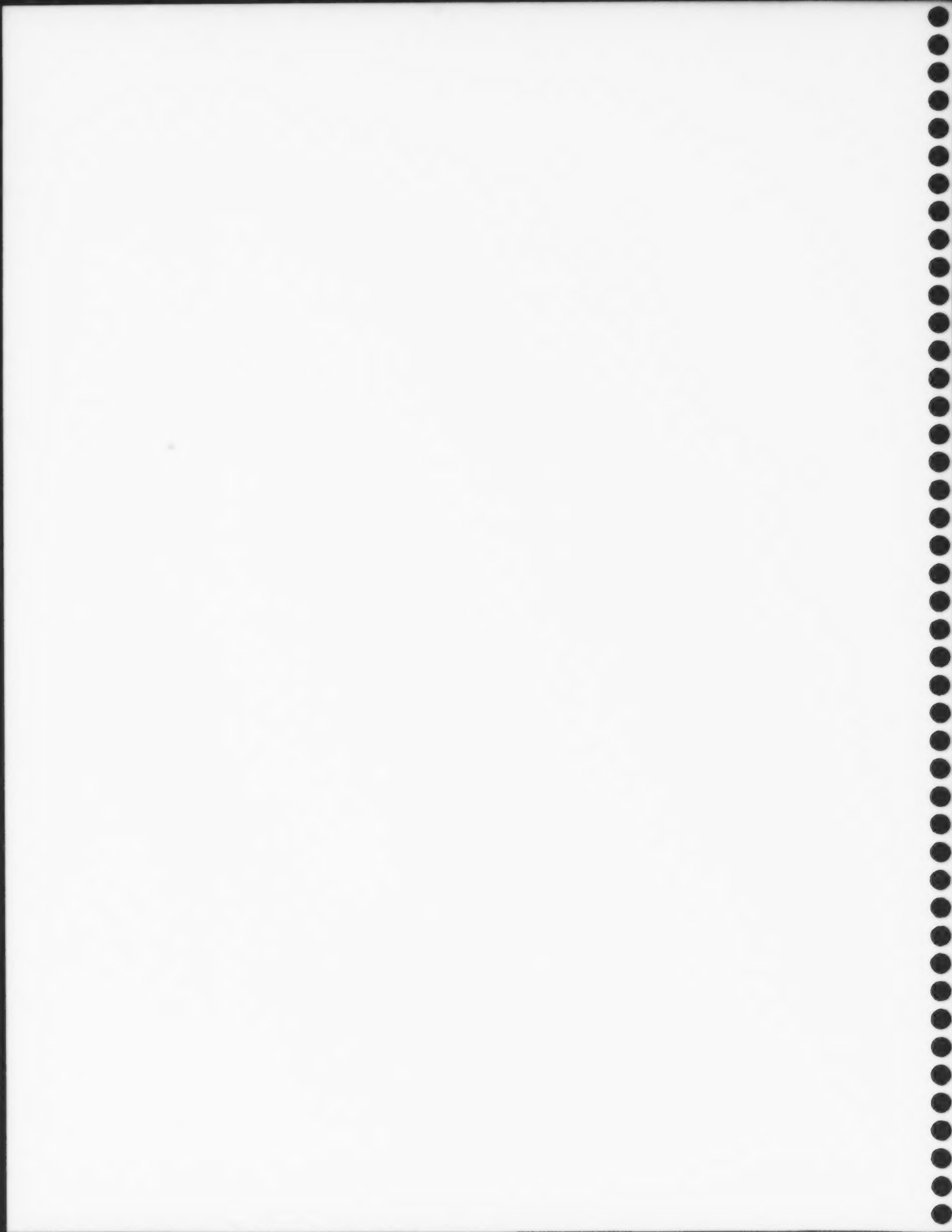
- *Enhance consistency and comparability* of reporting by recognizing operational differences between regions in the delivery and reporting of ambulatory care services;
- *Emergency acuity levels:* consider making triage levels a required, not optional element with consistent definitions for all Eds;
- *Benchmarking costs:* develop ACCS costs with reliable relative values that would facilitate the benchmarking of acuity in ambulatory care;
- *Development of program-based links:* the ability to easily link patient utilization between services, for example between non-interventional and procedural codes, could also be very helpful in future analyses of total costs of providing specific procedures.

9.2.3 *The Future of ACCS*

ACCS is an integral part of the planning and problem-solving matrix within regions and within AHW. Wider use of ACCS will lead to more improvements within the grouper and greater applicability of the grouper for both clinical and management purposes.

The data analysed here only represents the tip of the iceberg. Much more is possible with ACCS that can allow Alberta to quantify and benchmark ambulatory care services for the rest of Canada.

APPENDIX



I. ACKNOWLEDGEMENTS

The external consultant on this project was Dr. Nandini Pillai Kuehn of Health Services Consulting. Dr. Habib Fattoo, Senior Manager, led the team at Alberta Health and Wellness that included Mr. Dennis Schrieber, Ms. Shirley Groenen and Ms. Kasia Kunikiewicz. Mr. Tapan Chowdhury, Director of Health Funding and Costing Branch, provided guidance and direction during the development of this report. Ms. Carlene Brock was also consulted on various aspects of ACCS. The Provincial Ambulatory Care Advisory Group (PACAG) reviewed progress during the writing of this report. Individual members freely gave their time and advice when solicited. Members of PACAG are listed below.

Members of The Provincial Ambulatory Care Advisory Group (PACAG)

Name	RHA/Organization *
Bruce Airth	Aspen Regional Health Authority
Joanne DeForest	Calgary Health Region
Kathleen Addison	Calgary Health Region
Janelle Weller	Calgary Health Region
Leslie McRae	Calgary Health Region
Kim Walker	Capital Health Authority
Connie McMullin	Chinook Health Region
Susan Tylke	Crossroads Regional Health Authority
Lorrene Thiessen	Crossroads Regional Health Authority
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Wendy LeMoal	Northwestern Regional Health Authority
Barb Patterson	Northwestern Regional Health Authority
Mary Irwin	Peace Regional Health Authority
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* ALBERTA'S REGIONAL HEALTH AUTHORITIES' BOUNDARIES CHANGED ON APRIL 1, 2003.

II. HISTORY OF ACCS

In 1995, the Ambulatory Care Project Team at Alberta Health created a prototype grouper with 374 cells. ACCS Cells were developed with costs derived from costing initiatives that included ambulatory care at two hospitals: the University of Alberta Hospital (Capital RHA) and at Wetaskiwin Hospital (Crossroads RHA). After a series of tests, this prototype was amended and the Ambulatory Care Classification System, or ACCS, with 398 cells was implemented in 1997. These cells covered all services provided in Emergency Departments, Day Surgery, Day Procedures, Clinics, Rehabilitation, Mental Health, and Diagnostic Services. The implementation of the Provincial Costing Project provided ACCS with the exact opportunity it needed to use costs from across Alberta to update ACCS cells. All ACCS cells are weighted to provide resource needs and the costing project continues to provide average costs for each ACCS cell.

In the mid-1990s, health reform created 17 regions in Alberta with a consolidation of all health services within regions under Regional Health Authorities. A new group of players with a new population-based interest in health care services entered the scene, and the ACCS development team, in anticipation of these new opportunities, prepared ACCS to accommodate community-based services such as home care and rehabilitation. The commitment was to create a grouper that would be comprehensive, flexible and applicable to services regardless of the setting in which the service was provided.

a. Data Collection Milestones

The following reflect milestones in the expanding scope of the ACCS data collection process:

- April 1997: emergency department reporting and day procedure groups were initiated. These were the first to be required to report data using ACCS minimum data set requirements.
- October 1997: clinics, mental health and hospital-based rehabilitation services were phased in.
- April 1998: ACCS groups developed for high-cost investigative technology services.
- April 1999: community-based rehabilitation was brought into the ACCS reporting fold.
- April 2000: the ACCS Grouper Cell Review Team reviewed and revamped a large number of cells to reflect resource homogeneity. The changes to ACCS were the most extensive since its implementation. Mandatory reporting of discrete diagnostic imaging visits was also implemented.
- April 2002: ICD-10-CA/CCI was successfully implemented with ACCS now able to incorporate the new coding systems.

b. Status of Compliance with Reporting Requirements

In 1998, a detailed review of the data collection and systems review was commissioned through Geyer Szadowski Consulting Inc. The ensuring report - *Review of the ACCS Grouper* (September 1998) - concluded that the process was working well, and that although not all regions were reporting at the required levels, there was confidence in the data that was being reported.

Lack of automation in clinics, lack of resources to code and input data and lack of understanding of the benefits of compliance continued to hinder full compliance, but there is evidence that this has changed substantially in recent years.

Two additional events that affected compliance levels since the implementation phase were the preoccupation with Y2K compliance issues within all health facilities in 1999, which in many regions was a priority over ACCS data collection, and the conversion to ICD-10-CA/CCI. Alberta Health and Wellness led a process to map all ICD-10-CA/CCI codes to ACCS cells replacing old ICD-9-CM codes in the process. This process was successfully completed in 2002. Some regions have struggled to catch up with reporting requirements since these activities were concluded.

Growth in recent data submissions to Alberta Health and Wellness has been high. Between 1998 and 2002, ambulatory care data submissions to ACCS grew to a total of 5,903,494 visits, a growth of 2,233,827 records. Discussions with the larger regions indicate that they may be at or nearing full compliance with reporting requirements in 2002/2003.

III. OVERVIEW OF CHANGES TO ACCS 1997/1998 – 2002/2003

When the review of ACCS implementation was conducted in 1998, the consultants recommended that changes to reporting requirements be disseminated in a more systematic way (instead of announcing them throughout the year), and that there be a concurrent process to educate the field on coding issues and problems. Since then, Alberta Health and Wellness has organized an annual process to communicate with regions on changes required in the reporting of ambulatory data through the *Alberta Ambulatory Care Reporting Manual*. For the most part, these changes are primarily administrative – for example deletion of hospitals closed, re-defining terms ("institution number" replaced by "delivery organization" to reflect involvement of community-based services), or maintaining alignment with MIS coding. However, the manual also provides changes to such areas as the following:

- Splits in cells, additions to ACCS and the deletion of some cells;
- Additions of cells for provider types e.g. social workers, clinical nutritionists;
- Realignment of several data elements with inpatient morbidity data set, e.g. Anaesthetic type;
- Redefinitions of visits and contacts;
- Changes to intervention suffixes which were originally optional, became mandatory and ultimately were deleted entirely from the data set when ICD-10-CA/CCI were introduced.

The following overview highlights the key changes that were introduced in the last five years. Details of changes and the exact ACCS cells involved are contained in each year's *Alberta Ambulatory Care Reporting Manual*. The changes highlighted here demonstrate both the complex scope and richness of the information available in the ACCS data base, but also indicate where changes in definition and requirements and ACCS cells are significant and thus could affect trend analyses or conclusions that might be drawn from inter-year comparisons.

c. Changes in 1997/1998

ACCS Grouper Modifications were initiated even as the first grouper was implemented in 1997/1998. These changes were primarily refinements such as corrections to errors in codes, correcting grouping problems or updating of ICD-9-CM additions and deletions as well as additions and deletions of different providers of service.

Highlights:

- Disposition category 9 – “Left Without Being Seen” – was added
- The term “Procedure Groups” was changed to “Intervention Groups”

Potential Impact of These Changes

The detail provided by disposition codes is worth noting for future studies into quality of care, and on waiting times. The expansion of scope indicated by the change of “procedures” to “interventions” indicates the subtle shift away from medical to other treatment models. There were also a number of technical changes and corrections to the grouper which indicates that this first year was a test run for both the regions and the grouper itself. It reinforces the decision to not use this implementation year data for comparative studies.

d. Changes in 1998/1999

Highlights

- New provider types were added such as aides or assistants in audiology, respiratory, and speech language, as well as kinesiologist, psychometrist, and audiology technician.
- A category was added for reporting “non-registered” service recipients.
- Rehabilitation was instructed to report the main condition requiring treatment, if known, rather than the V code identifying the rehabilitation discipline.
- The intervention suffix was made mandatory.
- Several optional elements were provided (stakeholder type, referral source, referred to agency) for the benefit of those who might wish to track these elements.
- Several new treatment areas were added including cystic fibrosis, bronchoscopy, paediatric day/night care, general antepartum, orthoptics, hyperbaric chamber, pastoral care, and seating systems.
- New ICD-9-CM codes were added to the Intervention Code list.
- Investigative technologies such as CAT scan, MRI, vascular, nuclear medicine, and radiotherapy were now considered ACCS interventions. This change also replaced generic codes for investigative technology interventions.
- Six-digit codes were added for respiratory, clinical nutrition, social work and psychology.

- A new cell (ACCS 2082) was added to group telephone services into a new cell whereby the telephone service takes the place of a face-to-face visit and is worthy of clinical documentation.⁸

Potential Impact of These Changes

The changes meant that the database could yield a richer mix of provider types linked with ACCS cells. These could be analyzed to determine the ways in which different regions organize and deliver services for similar conditions, including differences in provider mix. These new codes increased the comprehensive nature of ACCS and made it more inclusive of services provided by non-medical clinicians and the non-acute care services.

Note that in this year, mental health was instructed to use the visit definition, a decision that was reversed in the next year. Again, this change needs to be kept in mind when conducting comparative analyses.

e. Changes in 1999/2000

Highlights

- The nurse practitioner code was added as a new provider type;
- Changes were made to the ambulatory intervention category inclusions for rehabilitation disciplines to reflect consistency with the MIS Workload Measurement system;
- Mental health was authorized to report "contacts", not visits – a reversal of earlier instructions for 1998/1999 that instructed sites to report mental health using visit definitions;

Potential Impact of These Changes

New definitions for mental health services could change volume counts for mental health services. Future analysis of mental health services will need to incorporate this change.

The fact that multiple diagnoses are available for all ACCS visits also adds to research potential as well as benchmarking and performance management opportunities.

The creation of a specific ACCS Group for telephone visits also facilitates benchmarking options for this service.

⁸ *Alberta Ambulatory Care Reporting Manual, Alberta Health, April 1998*

f. Changes in 2000/2001

The ACCS Grouper Cell Review Team (which included members from the Provincial Ambulatory Care Advisory Team, members from AHW, and the Costing Function Team of the Provincial Costing Partnership) led a review of the resource homogeneity of a number of ACCS grouper cells in early 2000.⁹ A series of recommendations were made on potential splits/mergers within ACCS groups. This study built on the report by David Weger in 1999 entitled *An Analysis of Cell Performance*. Mr. Weger provided consulting support to this project.

Highlights:

- Mandatory reporting of community rehabilitation services – this requirement had been mandated earlier, but clearly there had been problems with compliance.
- Discrete Diagnostic Imaging (DI) visits to be reported for acute care facilities using the new mode of service “9”.
- For this year, a summary of changes to Grouper Cells was also published. In some cases cells were merged; for example, ACCS Grouper 5.1 *Other Lens Procedure* was merged with 5.2 *Lens Procedure* to become Cell 5 *Lens Procedure*.
- In other instances, based on cost impact of reported anaesthetic type, several new cells were created to reflect use of local anaesthetic, general anaesthetic, other anaesthetic, and no anaesthetic (example 1.1 Nerve and Other, and 1.2 Disc Destruction), as well as the inclusion of conscious sedation, spinal/epidural, regional block, and other (into cells for lymphatic procedures, skin procedures and many other relevant ACCS groupers).
- A significant number of cells were merged during this year as well. MIS codes were added to reflect the impact of video consulting and conferencing as a venue for service.
- New ACCS cells were introduced for screening exam in genetics and for genetic counselling.

Potential Impact of These Changes

Recommendations in the changes for April 1, 2000 was expected to substantially increase homogeneity of ACCS cells. DI reporting was of particular interest because this data was not being reported if the service was provided in a stand-alone facility, an omission which would preclude regions recovering their costs through import/export adjustments. This change recommended by the Population Funding Committee provides one example of the ways in which data is being used in the system and which needs to be reviewed by regions.

Changes brought about by this cell review have the potential to impact on the way in which volumes and trend analyses are conducted in future. This analysis resulted in a number of cells being either collapsed or split, may appear to reflect changes in service. Calculations of visit volumes and evaluation of changes in volumes and costs over time will need to factor in the impact of these changes.

⁹ Health Costing in Alberta, 2002 Annual Report, page 11

g. Changes in 2001/2002

The changes for this year were few and as follows:

- ACCS now required registration time and disposition time for patients in emergency and day surgery.
- In addition, the main service provider type was made mandatory for emergency and day surgery reporting.

Potential Impact of These Changes

Disposition codes and provider types (currently optional except for mental health reporting) are very useful in developing provincial policy and benchmarking for waits for service across all hospital emergency departments. These will also enable regions to look at how their hospitals are addressing waits, and determine the need for additional resources based on variations in patients treated in different emergency departments within their region.

h. Changes in 2002/2003

The most significant change in this year was driven by the implementation of ICD-10-CA/CCI which changed diagnosis and intervention codes used for ACCS grouping.

Highlights:

- ICD-10-CA codes were required to report both main and secondary diagnoses.
- CCI codes were required for main and other interventions. These codes replaced Alberta based six-digit intervention codes for rehabilitation, social work, mental health, etc.
- CCI intervention codes were introduced as mandatory elements to describe services provided. New attribute codes are essential for appropriate ACCS group assignment in some cases. Intervention suffix (mandatory in 1998) is deleted.
- E Codes were deleted and new ICD-10-CA codes were introduced for E Codes.
- Anaesthetic type was further modified to become consistent with inpatient reporting.
- New elements were introduced to facilitate required reports at the national level for therapeutic abortions.

Potential Impact of These Changes

The move to ICD-10-CA/CCI was inevitable for Alberta. All ICD-10-CA and CCI codes were mapped back to ICD-9-CM codes. The changes necessitated by the move to ICD-10-CA make may mean that comparative analyses between this year and preceding years should be undertaken with caution. As new codes enter the system, the need to assess the impact on ACCS will become critical to any trend analysis in future.

